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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Benjamin J. Hauptman
LOWE HAUPTMAN
GILMAN & BERNER, LLP
1700 Diagonal Road, Suite 310
Alexandria, VA 22314

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/11/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n N .		Applicant(s)	
	09/819,821		ROGER, MICHEL	
	Examiner		Art Unit	
	Ramsey Zacharia		1773	

-- The MAILING DATE f this communication appears n the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2002 .
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

3. Applicant is advised that should claim 5 be found allowable, claim 11 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof since a rubber is the same thing as an elastomer. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

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Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 2, 4, 5, 11-17, 19, and 27-33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

No support for the coatings having a thickness of "from about 10 to about 30 μm " (claims 1, 2, 4, 5, 11-17, and 27-33) or a thickness of "from about 10 to about 35 μm " (claim 19) could be found in the disclosure as originally filed. Note that the disclosure does support a coating having a thickness of between 10 and 35 μm (see page 5, lines 8-9).

6. Claims 1, 2, 6-10, 12-15, 21-25, and 28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

No support for the limitation that the body is made of non-metallic material could be found in the disclosure as originally filed. Note that the disclosure does support a body made of a plastic or rubber.

7. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the

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claimed invention. This is a new matter rejection. No support for the limitation that the plastic material of the body has a softening point higher than about 180 °C. Note that the disclosure does support a body made of a plastic material having a softening point of higher than 180 °C, but not higher than *about* 180 °C.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 2, 4-6, 11, 12, 18-21, and 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Jadamus et al. (U.S. Patent 6,090,459).

Jadamus et al. teach a multilayer plastic article comprising outer and inner layers of thermoplastic molding composition (column 2, lines 4-25). Suitable materials for the inner layer include fluoropolymers such as ETFE and THV, i.e. polymers of tetrafluoroethylene (column 4, lines 31-42). The inner layer may have a thickness as low as 0.01 mm, i.e. 10 µm (column 5, lines 15-16). The article may be a pipe for transporting fuel and/or a fuel tank (column 5, lines 31-40). The outer layer may comprise a plastic or an elastomer (column 2, lines 17-25).

Regarding claims 12, 21, and 31, the inner layer of a pipe or tank is also as outer layer since it is in contact with the outside environment.

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10. Claims 1, 2, 4-7, 11-13, 17-21, 27-31, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Close (U.S. Patent 4,400,482).

Close teaches a fluoroelastomer film designed to adhere well to a variety of substrates, such as plastics and rubbers, that can be formed at a thickness of as low as 0.025 mm, i.e. 25 μ m (column 2, lines 37-55). The film is applied from a solution comprising the fluoroelastomer and a silane in a solvent (column 3, lines 9-18). Suitable fluoroelastomers include copolymers of vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene, i.e. polymers of tetrafluoroethylene (column 3, lines 60-64). The film may be applied by spraying (column 6, lines 21-23). The film can be used to coat articles such as tubing, hoses, fuel tanks, O-rings, fabricated seals (column 9, lines 45-59). Fabricated seals are taken to read on the valve membrane of claims 17 and 33.

Regarding claim 7, the solution comprising the fluoroelastomer is taken to read on a liquid polytetrafluoroethylene since it is a liquid and contains a polymer of tetrafluoroethylene.

Regarding claims 12, 21, and 31, the inner layer of a pipe or tank is also as outer layer since it is in contact with the outside environment.

Claim Rejections - 35 USC § 103

11. Claims 8, 9, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Close (U.S. Patent 4,400,482) in view of Slama et al. (U.S. Patent 4,237,177).

Close teaches a fluoroelastomer film designed to adhere well to a variety of substrates as outlined above. The film is applied from a solution comprising a fluoroelastomer and a silane

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(column 3, lines 9-18). This silane reads on the bonding agent of claim 8. Suitable fluoroelastomers include copolymers of vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene, i.e. polymers of tetrafluoroethylene (column 3, lines 60-64). The film may be applied by spraying (column 6, lines 21-23). In one embodiment, the film is applied over a fiberglass laminate impregnated with cured polyester or epoxy for use as air frames from a solution comprising a fluoroelastomer, silane and MT black, i.e. a pigment (column 8, lines 8-36). The fiberglass laminate impregnated with cured polyester or epoxy is taken to have a softening temperature of greater than about 180 °C since it is intended to be used as the frame of an airplane. A process for applying the film comprises first applying the solution, followed by drying the applied solution, then baking the coating at 149 °C (column 7, lines 23-38).

Close does not teach applying the film by spraying a dispersion as opposed to a solution. Moreover, Close is silent with respect to the temperature at which the drying step is performed.

Slama et al. is directed to a fluoroelastomer coating composition (column 1, lines 5-11). The fluoroelastomer may be applied as a solution or a dispersion, i.e. particles of the fluoroelastomer in a solvent (column 5, lines 50-61).

Slama et al. show that solutions and dispersions are known in the art as equivalent means for applying fluoroelastomer coatings. Therefore, because these two fluid types were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to use a fluoroelastomer dispersion in place of the fluoroelastomer solution of Close.

Moreover, while silent as to the temperature, Close does describe a drying step. The rate and degree of drying is known to be a function of the temperature at which the drying is

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performed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the temperature of the drying step of Close, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Therefore, the inventions of claims 8, 9, and 24-26 would have been obvious to one of ordinary skill in the art at the time the inventions were made.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Close (U.S. Patent 4,400,482) in view of Eguchi et al. (U.S. Patent 5,665,444).

Close teaches a tube comprising a fluoroelastomer spray coated on the inside of the tube, as outlined above.

Close does not teach that the spray nozzle and the tube are giving relative rotational movement in addition to the translational movement that is assumed to occur since it is intended to coat the entire length of the tube.

Eguchi et al. is directed to a method for applying a coating to the inside of a tube (column 1, lines 8-15). The coating may be applied by spraying (column 9, lines 33-37). The spray nozzle may be rotated around its shaft (column 9, lines 41-47). Rotating the nozzle around its shaft, in combination with increasing the number of openings in the nozzle, allows the coating to be applied more uniformly.

One of ordinary skill in the art would be motivated to rotate the spray device of Close in order to produce a more uniformly applied coating.

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Therefore, the invention of claim 10 would have been obvious to one of ordinary skill in the art at the time the invention was made.

13. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Close (U.S. Patent 4,400,482) in view of Alger (*Polymer Science Dictionary*, pages 335-336)

Close teaches a tube coated with a fluoroelastomer layer for use as a fuel conduit, as outlined above. The coating is applied to a substrate layer that may be a nitrile rubber (column 6, lines 15-19).

Close does not teach that the nitrile rubber is nitrile PVC, i.e. a blend of nitrile rubber and polyvinyl chloride. However, the resulting material is used in applications where it will come in contact with fuel.

Alger discloses that it is known to blend PVC into nitrile rubber to improve the oil resistance of the rubber as well as improved resistance to weathering, abrasion, and ozone (nitrile rubber, page 336).

One of ordinary skill in the art would be motivated to add PVC to the nitrile rubber of Close, thereby formed nitrile PVC, to further improve the oil, abrasion, weathering, and ozone resistance of the resulting article.

Therefore, the invention of claim 16 would have been obvious to one of ordinary skill in the art at the time the invention was made.

14. Claim 1, 2, 5-7, 11, 13, 14, and 18-20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (JP 8-74048) in view of Close (U.S. Patent 4,400,482).

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Suzuki teaches a device comprising a rubber O-ring having a circumferential groove around its outer perimeter.

Suzuki does not teach that the O-ring has a polytetrafluoroethylene coating having a thickness of about 10-30 μm .

Close teaches a fluoroelastomer film designed to adhere well to a variety of substrates, such as rubbers, that can be formed at a thickness of as low as 0.025 mm, i.e. 25 μm (column 2, lines 37-55). The film is applied from a solution comprising the fluoroelastomer and a silane in a solvent (column 3, lines 9-18). Suitable fluoroelastomers include copolymers of vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene, i.e. polymers of tetrafluoroethylene (column 3, lines 60-64). The film may be applied by spraying (column 6, lines 21-23). The film can be used to coat articles such as O-rings (column 9, lines 45-59). The fluoroelastomer film is applied as a coating to improve the resistance to heat and chemicals (column 1, lines 21-35 and column 6, lines 4-14).

One of ordinary skill in the art would be motivated to apply the coating of Close to the O-ring of Suzuki to improve its heat and chemical resistance, especially since Close explicitly teaches that such a coating may be applied to O-rings.

Therefore, the invention of claim 14 would have been obvious to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

15. Applicant's arguments with respect to claims 1, 2, and 4-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (703) 305-0503. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for non after-final correspondences and (703) 872-9311 for after-final correspondences.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

REZ

Ramsey Zacharia

12/4/02


Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700